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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,262	02/26/2002	Jonathan C. Drake	FSCOP002	4368
22434	7590	03/04/2004	EXAMINER	
BEYER WEAVER & THOMAS LLP			LORENZO, JERRY A	
P.O. BOX 778			ART UNIT	
BERKELEY, CA 94704-0778			PAPER NUMBER	

1734

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/084,262

Applicant(s)

DRAKE, JONATHAN C.

Examiner

Jerry A. Lorengo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-18, 43 and 44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-18 and 43 is/are rejected.
- 7) ☒ Claim(s) 44 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/12/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

(1)

### *Election/Restrictions*

Applicant's election of claims 11-18 in the paper filed December 1, 2003 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

(2)

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 11-18 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,059,471 to Haigh in view of U.S. Patent No. 4,997,507 to Meyer.

Regarding applicant claim 11, Haigh discloses a method for forming a dye sublimation image in a substrate comprising the steps of (Figure 13; column 11, line 60 to column 12, line 15):

- (1) Providing a sublimation dye carrier 104 having an image thereon formed in a sublimatic dyestuff;
- (2) Providing a flat substrate 108;

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- (3) Placing the image disposed on the dye carrier 104 against the flat substrate 108;
- (4) Conveying the substrate 108 and dye carrier 104 along a path with a first part 118 and a second part 120;
- (5) Providing pressure and heat against the substrate 108 and the dye carrier 104 in the first part 118 and heating the dye carrier to a temperature sufficient to cause the sublimation image carried on the dye carrier 104 to sublime and transfer into the surface of the substrate 108; and
- (6) Conveying the substrate 108 and dye carrier 104 from the first part 118 to a second part 120 where, under pressure, the dye carrier and substrate are cooled; and
- (7) Separating the spent dye carrier 104 from the sublimated imaged substrate 108.

Although Haigh disclose that the heating 118 and cooling 120 zones are kept under pressure, he does not specifically disclose, as per applicant claim 11, that the pressure is continuous in both the heating and cooling zones and there between. Nonetheless, it would have been obvious to one of ordinary skill in the art at the time of invention to provide for a continuous pressure in the claimed manner motivated by the fact that Meyer, also drawn to methods for the pressure lamination of substrates conveyed through heating and cooling stations, discloses that the provision of continuous pressure on the laminae during heating and cooling (through the use of a continuous double-belt press having an upper and lower belts which are pressed against one another by the action of an evacuating means) enables any air or vapor pockets between the layers to be removed which results in more uniform contact and uniform conduction of heat throughout the workpieces (Figures 1-4; column 7, line 58 to column 8, line 11; column 8, lines 50-68). Furthermore, the skilled artisan would have been appreciative of the fact that with continuous pressure, intimate contact between the dye carrier 104 and the substrate 108 of Haigh could be maintained thereby resulting in an ineffective sublimation and migration of the dye stuff from the dye carrier to the substrate which would cause mars, faint spots and generally unappealing decoration of the substrate.

Regarding applicant claims 12 and 13, Haigh discloses that the dye carrier 104 and substrate 108 are pressed together at a pressure of between 0.1 to 50 psig, i.e., 14.01 and 64 psi (column 12, lines 58-64). Furthermore, Meyer discloses that the degree of pressurization depends

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in part upon the type of sheet materials being worked upon with optimum conditions being adjustable in a manner known to those skilled in the art (column 8, lines 41-49).

Although they do not specifically disclose, as per applicant claim 16, that the sublimation temperature is above the glass transition temperature, it would have been obvious to one of ordinary skill in the art of the time of invention that the method of Haigh would result in the sublimation occurring at a temperature above the glass transition temperature of the substrate motivated by the fact that Haigh, as per applicant claim 17, discloses that the cooling is accomplished until the substrate is cooled below its softening (glass transition) temperature (column 12, lines 9-12).

Finally, although Haigh does not specifically disclose that the continuous pressure has the effects set forth in applicant claims 14 and 15, the skilled artisan would have appreciated that a continuous application of pressure in the heating and cooling zones would avoid structural creep of the substrate given that Haigh teaches that the substrate and dye carrier must be cooled below their softening temperatures which would ensure that the substrate were structurally stable before they are separated. Furthermore, the skilled artisan would have appreciated that any structural variances imparted to the substrate during transfer would result in a substrate having an inconsistent image and differential penetration of the sublimated dyes therein.

Regarding applicant claim 18, Meyer discloses that the continuous pressure is provided by a gas pressure differential, i.e., a vacuum, through the use of turbine means which evacuate the spaces between the upper and lower continuous belts.

Regarding application claim 43, although Haigh discloses the overall method, he does not specifically disclose the thermoforming methodology of claim 43. Nonetheless, the skilled artisan would have been appreciative of the fact that the sublimation imaged substrate could be thermoformed motivated by the fact that Haigh contemplates the thermoforming of a sublimation transfer support in contact with the target substrate wherein they are placed in a thermoforming means to be molded after which the assembly is cooled and the transfer support is removed therefrom (Figures 5 and 6; column 9, line 54-22).

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(3)

***Allowable Subject Matter***

Claim 44 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Although the prior art as applied in section (2), above, discloses the continuously pressured sublimatic dye transfer and thermoforming methodologies, neither they nor any of the prior art of record specifically teach or suggest the elongation and non-sublimation image thinning parameters set forth in applicant claim 44.

(4)

***Response to Amendments and Arguments***

The amendments and arguments filed December 1, 2003 are acknowledged. In response thereto and the arguments set forth in the Remarks/Arguments section, a new ground of rejection has been set forth in sections (2) and (3), above. The action is in specific regard to the failure of the Haigh reference to teach the provision of continuous pressure in the heating and cooling zones and there between. Applicant's remaining arguments with respect to claims 11-18 have been considered but are moot in view of the new ground(s) of rejection.

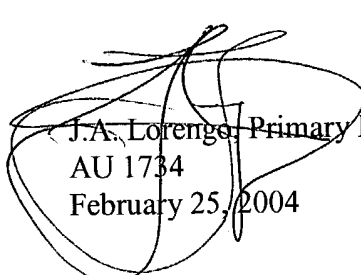
(5)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry A. Lorengo whose telephone number is (571) 272-1233. The examiner can normally be reached on Monday through Friday, 8:30 A.M. to 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



J.A. Lorengo, Primary Examiner  
AU 1734  
February 25, 2004